

Patent claims

1. A self-opener closure for composite packagings as well as for container spouts to be closed with film material, consisting of a pour-out spout (2) which may be sealingly assembled onto a composite packaging or onto a container spout or bottle spout closed with a film material, of an associated rotary cap (1) as well as a self-opener sleeve (3) which is arranged within the pour-out spout (2) and which may be set into rotation by the rotary cap (1), characterised in that the self-opener sleeve (3) at its lower edge and projecting from this comprises at least one combined piercing and cutting member (9), and that this self-opener sleeve (3), the pour-out spout (2) as well as the rotary cap (1) are equipped with guide and transmission means which cooperate with one another in a manner such that on rotating the rotary cap (1) for the first time in the direction of opening, the self-opener sleeve (3) firstly may be pushed axially downwards in the pour-out spout (2) without rotation and subsequently is rotatable about its rotary axis without axial movement.
2. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to claim 1, characterised in that on the lower side of the associated rotary cap (1) and concentrically to this there is integrally formed a spout (34) with a projecting edge (35) at its lower end, over which a nipple (36) with an inwardly projecting edge (37) on its upper side is pushed, wherein the two projecting edges (35, 37) engage behind one another, by which means the pushed-over nipple (36) is rotatable with respect to the spout (34) integrally formed on the rotary cap lower side and is longitudinally displaceable in the axial direction, and the free displacement path in the axial direction corresponds at least to the axial path of the rotary cap (1) which this executes on rotating in the opening direction for the first time, until the self-opener sleeve (3) firstly is pushed axially downwards in the pour-out spout (2) and subsequently is rotated by 360° about its rotational axis without axial movement.
3. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to claim 2, characterised in that the nipple (36) is connected to the self-opener sleeve (3) via thin material webs (42) which are envisaged to act as break-off locations.

4. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the preceding claims, characterised in that the force transmission means on the rotary cap (1) cooperating with one another include two cylinder wall segments (5) which are arranged on the inner side of the rotary cap lid (16) concentrically to the rotary cap axis and their lower edge lying in the axial direction forms a guide curve which cooperates with the force transmission means (12) on the self-opener sleeve (3) which consists of two cams (12) on the upper inner edge of the sleeve (3), and that the guide means cooperating with one another consist of guide ribs (21) on the outer side of the self-opener sleeve (3), and guide webs (8) on the inner side of the pour-out spout (2), so that on rotating the rotary cap (1) in the opening direction for the first time the self-opener sleeve (3) may firstly be pushed vertically downwards in the pour-out spout (2) and subsequently rotated in the horizontal about approximately 360°.
5. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the claims 1 to 3, characterised in that the self-opener sleeve (3) at its lower edge and projecting from this comprises two combined piercing and cutting members (9) arranged approximately diametrically opposite one another, and that the force transmission means on the rotary cap (1) cooperating with one another include three cylinder wall segments (5) which are arranged concentrically to the rotary cap axis on the inner side of the rotary cap lid (16) and their lower edge lying in the axial direction forms a guide curve which cooperates with the force transmission means (12) on the self-opener sleeve (3) which consist of three cams (12) on the upper inner edge of the sleeve (3), and that the guide means cooperating with one another consist of guide ribs (21) on the outer side of the self-opener sleeve (3) and guide webs (8) on the inner side of the pour-out spout (2), so that on rotating the rotary cap (1) in the opening direction for the first time the self-opener sleeve (3) firstly in the pour-out spout (2) may be pushed vertically downwards and subsequently may be rotated over approximately 180° in the horizontal.
6. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the preceding claims, characterised in that the force transmission means (5) on the rotary cap (1)

cooperating with one another include several cylinder wall segments (5) which are arranged on the inner side of the rotary cap lid (16) concentrically to the rotary cap axis and whose lower edge lying below in the axial direction forms two edge sections (13, 14) ascending counter to one another which are displaced to one another in the axial direction in a stepped manner, wherein the first edge section (13) seen from below into the rotary cap lid (16), ascends in the anti-clockwise direction from the level of the rotary cap lid (16), and the second counter ascending edge section (14) ascends in the clockwise direction from the level of the end of the first ascending edge section (13), and that the force transmission means (12) on the self-opener sleeve include several catching cams (12) on the upper edge, further that each combined piercing and cutting member (9) on the self-opener sleeve (3) includes a piercing cutter (9) projecting from the lower sleeve edge with a sharpened tip (10) and with cutting edges (11) sharpened in the circumferential direction of the sleeve, as well as that the guide means on the self-opener sleeve (3) cooperating with one another consist of several guide ribs (21) arranged distributed over its circumference on the outer wall, with in each case two vertical sections (23, 24) and a horizontal section (22) connecting these on the upper side, and of guide webs (8) cooperating with these guide ribs (22, 23, 24) on the inner wall of the pour-out spout (2), said guide webs having horizontal sections (19) which in the initial rotational position of the self-opener sleeve (3) applied in the pour-out spout (2) with respect to the pour-out spout (2) extend over the circumferential sections (19) on the self-opener sleeve (3) which remain free, wherein at least two horizontal sections (19), seen from above onto the pour-out spout (2) in the clockwise direction comprise a vertical section (18) connecting thereto, so that on unturning the threaded cap (1) the self-opener sleeve (3) is vertically guided therein in a manner such that the catching cam (12) on the sleeve (3) may be pushed downwards along the vertical sections (23, 24) of the guide ribs (21) and guide webs (8) by that ascending edge section (13) on the cylinder wall segment (5) which reaches up the threaded cap lid (16), until the catching cam (12) abuts on the step (15), and subsequently may be set by this into a horizontal rotation below and along the horizontal sections (22) of the guide ribs (21) and the guide webs (8).

7. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to claim 6, characterised in that the rotary cap (1) is a threaded cap (1) with an inner thread (4) and the pour-out spout (2) is a threaded spout with an outer thread (6), and that one of the four guide ribs (21) arranged distributed on the outer wall of the self-opener sleeve

over its circumference extends over that circumferential region over which the piercing cutter (9) extends, and that that vertical section (24) of this guide rib (21) which seen from above in the anti-clockwise direction is located in front of the piercing cutter (9), thus precedes it on rotation in the anti-clockwise direction, extends up to the lower edge of the self-opener sleeve (3), and that at the lower inner edge of the pour-out spout (2) there is formed an inwardly projecting abutment cam (20) which in the initial position of the self-opener sleeve (3) applied in the pour-out spout (2) bears on the location of the tip (10) of the piercing cutter (9), wherein the effective height and pitch of the thread on the threaded cap (1) is dimensioned such that the self-opener sleeve (3) may firstly be pushed vertically downwards by the force transmission means up to the screwed-free position of the threaded cap (1), until the piercing cutter (9) projects beyond the lower edge of the pour-out spout (2), and subsequently is rotatable over approximately 360° in the horizontal plane, in which position the vertical section (24) of the guide rib (21) reaching up to the edge abuts the abutment cam (20) and prevents a further rotation of the self-opener sleeve (3).

8. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to claim 6 or 7, characterised in that the edge sections (13) of the cylinder wall sections (5) which seen from below into the threaded cap (1) ascend into the clockwise direction are dimensioned such that on screwing the threaded cap (1) onto the pour-out spout (2), after its unscrewing for the first time, they in each case slide twice over the inwardly projecting cams (12) on the self-opener sleeve (3) and as a result push it downwards within the pour-out spout (2) in two thrusts.
9. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the preceding claims, characterised in that each combined piercing and cutting member (9) on the self-opener sleeve (3) is a piercing cutter (9) projecting from the lower sleeve edge in the form of an isosceles triangle with a tip projecting downwards, whose tip projecting downwards (10) lies between two equal length limbs of the triangle and is sharpened and whose free triangle sides facing in the circumferential direction in each case form a sharp edge (11).

10. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the preceding claims, characterised in that it is filled with a substance capable of being trickled or poured and from the lower side is sealingly closed with a laminate film (32).
11. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the preceding claims, characterised in that its self-opener sleeve (3) on its inner side is coated with a soluble substance.
12. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the claims 1 to 9, characterised in that on the lower side of its cap lid there is integrally formed a metering spout (42) which in its length is dimensioned such that with a screwed-on lid cap (1), it with its lower edge (44) downwardly projects beyond the flange-like projection (7) on the pour-out spout (2).
13. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the preceding claims, characterised in that on the lower edge of the threaded cap (1) there is integrally formed a guarantee strip (25) via a number of fine material bridges (26) which is pushed over a bead which is circumferential on the pour-out spout (2) below its outer thread (6) and encloses the pour-out spout (2) on the lower side of the bead.
14. A self-opener closure for composite packagings as well as for container spouts or bottle spouts to be closed with film material, according to one of the preceding claims, characterised in that the outer circumferential side of the rotary cap (1) forms a knurled or grooved grip surface, a square, hexagon or octagon, or that in the upper side of the rotary cap there is formed at least one diametrical groove or a diametrically upwardly projecting web.